The Golden Retriever Club of America, Inc.

Introduction to Pigmentary Uveitis

Pigmentary uveitis, also known as Golden Retriever uveitis, is an important cause of blindness in Golden Retrievers. It was first described in the scientific literature in 2000 (Sapienza et al, 2000), but the GRCA Health and Genetics Committee (H&G) is aware of anecdotal reports which suggest it occurred well before this. The American College of Veterinary Ophthalmologists (ACVO) listed pigmentary uveitis as a condition presumed to be inherited in Goldens beginning in 2001, which means that prior to that time, dogs diagnosed with pigmentary uveitis were eligible to receive CERF (Canine Eye Registry Foundation) numbers.

Uveitis

Uveitis is inflammation in the parts of the eye that normally contain the blood vessels, called the uvea, which includes the iris, ciliary body and choroid. Many things can cause uveitis, including infections, cancer, and autoimmune diseases. Blood, inflammatory cells, and clotting factors tend to leak from the blood vessels in affected eyes, and the disease may not only be painful, but may also cause serious secondary conditions including glaucoma, cataracts and blindness.

Features of Pigmentary Uveitis

Pigmentary uveitis is a specific form of uveitis that affects exclusively or almost exclusively Golden Retrievers. Unlike other forms of uveitis, pigmentary uveitis is not associated with any known systemic disease or underlying cause. It is typically a disease of middle-aged or older Goldens, with most diagnosed at five years old and beyond (ACVO, 2007). The Sapienza paper described an age range of 4.5 to 14.5 years old, and both eyes were involved in most cases. This paper also showed that pigmentary uveitis is often associated with iridociliary cysts, can cause cataracts, and frequently progresses to glaucoma, with 46% of the affected eyes becoming blind as a result of glaucoma.

Prevalence

Because pigmentary uveitis is often diagnosed at an ophthalmologist's office due to clinical symptoms instead of at well-dog eye screening clinics, many or most cases are not reported to a central database. Therefore, we currently do not have accurate incidence data, and this will be discussed further below. However, information from multiple sources indicates that this is a significant health issue in the breed. For example, 4 years of CERF data from 2008 thru 2011 showed that among Goldens over the age of 10 years that were presented for eye screening, 9.9% (76 affected out of 766 examined) were diagnosed with pigmentary uveitis. These figures are

consistent with the H&G's observations of increasing contacts from GRCA members and breeders regarding this disease.

Importance of Early Detection

Many ophthalmologists believe that early detection provides the best opportunity for effective treatment. However, signs of pigmentary uveitis are often subtle and may be confused with less serious conditions such as conjunctivitis. Affected eyes may be reddened or there may be a mild discharge, but in many cases there are no outward signs of disease in its earliest and potentially most treatable stages. Therefore, many veterinary ophthalmologists now feel that every Golden Retriever should have a yearly eye examination by an ophthalmologist, even in the absence of symptoms. These exams should begin prior to breeding for breeding dogs, but pet owners may wish to begin these yearly exams at about 3-5 years of age. This is because even though pigmentary uveitis is more common among older dogs, it certainly does affect younger dogs too. In fact, CERF data from 2008 thru 2011 show that *most* cases were diagnosed prior to 10 years old, with 323 dogs in that age range diagnosed. And while this represented only 1.2% of dogs under 10 that were examined, that is still a lot of dogs whose prognosis may have improved due to early diagnosis. Finally, owners should be aware that unexplained tearing or redness of the eye can be a sign of pigmentary uveitis, and that a timely examination by a veterinary ophthalmologist may lead to diagnosis and initiation of therapy that is believed to provide the greatest chance for preserving vision.

Breeding Considerations

Because pigmentary uveitis often develops after the prime reproductive years, it is difficult to control in breeding programs. Further, we do not yet understand the mode of inheritance, so the most prudent breeding strategy is to minimize the genetic contribution of affected dogs and their close relatives. For current breeders, this involves diligent investigation into the results of eye examinations of direct ancestors and their siblings in old age. This also means that owners of Goldens that have been bred in the past should continue eye examinations throughout the dog's lifetime so that their status is known. (These exams are part of the GRCA Code of Ethics.) Normal results recorded in a searchable online database, usually CERF or OFA (Orthopedic Foundation for Animals), ensure that data is available to all subsequent generations (CERF http://www.vmdb.org/verify.html and OFA http://offa.org/). Owners are also encouraged to submit and release abnormal data (affected dogs) to OFA's open database at no charge, or to CERF's open database for a nominal fee.

In addition, the H&G strongly recommends that all ophthalmology examinations (other than perhaps for trauma) include a CERF or OFA report. If the dog has genetic eye disease and is ineligible for a CERF or OFA number, the owner does not need to submit the owner copy (unless they wish to release the information into the open database) because the ophthalmologist will submit the CERF or OFA copy. Neither CERF nor OFA disclose the identity of affected dogs, but these reports allow us to track the frequency of eye disease in Goldens. This aggregate information helps us better understand how eye diseases impact the breed, may help us become

more rapidly aware of emerging diseases, and aids in funding decisions regarding research projects.

Research

We are very fortunate to have veterinary ophthalmologist Wendy Townsend, DVM, MS, Assistant Professor of Ophthalmology at Purdue University College of Veterinary Medicine, investigating pigmentary uveitis. And we are extremely grateful to the owners of dogs with pigmentary uveitis who have submitted DNA samples, pedigrees, and diagnostic information to Dr Townsend. However, there is still much work to be done, and owners of **both affected and unaffected dogs** can help; please see "How to Participate in Pigmentary Uveitis Research" at http://www.grca.org/health/uveitis.html for details. This disease is extremely challenging to control without a DNA test, so owner participation in research is vital to improve control of pigmentary uveitis in the breed.

Dr. Townsend graciously agreed to answer the below questions:

Q: Many dogs diagnosed with pigmentary uveitis come from lines with a long pedigree history of normal eye examinations and no known prior affected dogs. How certain are ophthalmologists that this is an inherited disease, and on what is this based?

Dr Townsend: We strongly suspect that the disease is inherited because we don't see a condition that really looks exactly like this in any other breed. If we were dealing with an infectious cause, etc. we would expect to see it in other breeds. Also from my discussion with ophthalmologists in the UK, the condition is very infrequently seen in the Golden Retriever population there. We also have pedigrees in which we can trace the condition for several generations. In those pedigrees in which there are large gaps (or long histories of normal) it could be that we have some individuals that were going to express the disease but unfortunately died due to other conditions before pigmentary uveitis could develop.

Q: Is there any additional information or comments that you would like to share with our membership and other Golden owners?

Dr Townsend: Because Goldens with pigmentary uveitis often have iris cysts, if iris cysts are noted on an eye examination, those dogs should be monitored very closely. While the presence of iris cysts does not mean that an individual will go on to develop pigmentary uveitis, almost all Goldens with pigmentary uveitis do have the iris cysts. Therefore I recommend owners of those dogs have their eyes examined every 6 months or sooner if they notice any redness, discharge, etc. as those may signal early signs of pigmentary uveitis.

Additional Information

Please see **"Expert Ophthalmologists Answer GRCA Member Questions about Pigmentary Uveitis"** on the Health section of the GRCA website http://grca.org/

References

ACVO (American College of Veterinary Ophthalmologists). **Ocular Disorders Presumed to be Inherited in Purebred Dogs**, Fifth Edition. ACVO. West Lafayette, IN, 2007

Sapienza J, Simo FJ, Prade-Sapienza A. **Golden Retriever Uveitis: 75 cases (1994-1999)**. Vet Ophthal. 4:241-246, 2000.

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